

Ata Aydın Uslu – Hamdi Goktan Ozmenekse

15.03.2012

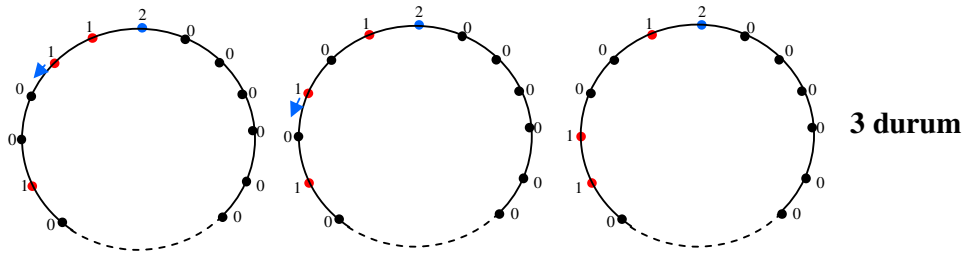
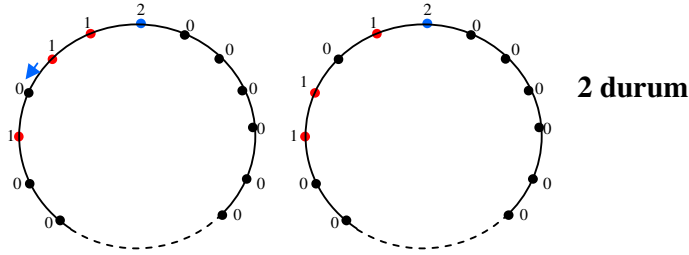
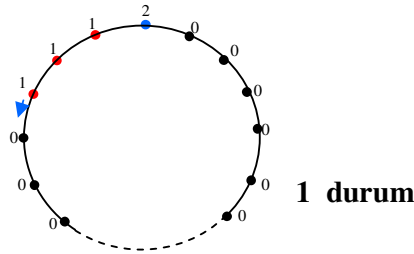
Number of bracelets made with 1 blue, 3 identical red and n identical black beads.

Tam değer fonksiyonu:

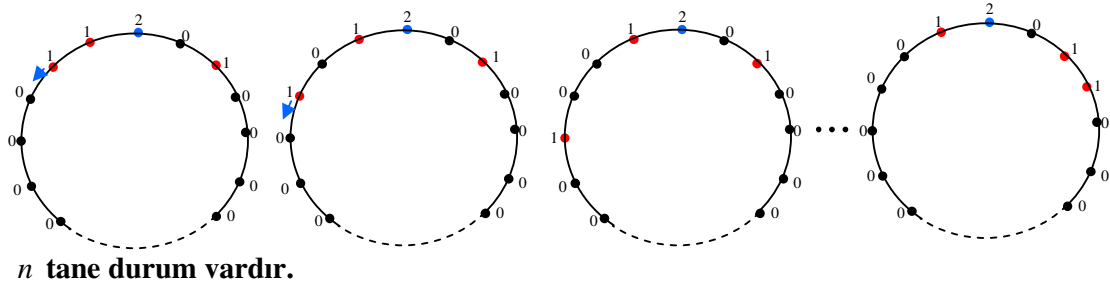
$x \in R$ olmak üzere, x 'ten büyük olmayan en büyük tamsayıya, x 'in **tam değeri** denir ve $\lfloor x \rfloor$ sembolü ile gösterilir. Yani,

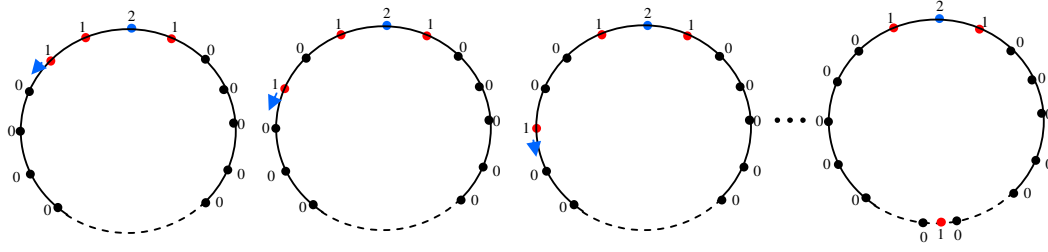
$a \in Z$ olmak üzere, $a \leq x < a+1 \Leftrightarrow \lfloor x \rfloor = a$ dır.

Teorem: 1 tane mavi, 3 tane özdeş kırmızı ve n tane özdeş siyah boncuklar ile yapılacak bilekliklerin sayısı $F(1,3,n)$ ise $F(1,3,n) = \frac{n(n+1)}{2} + \left\lfloor \frac{n}{2} \right\rfloor + 1 + F(1,3,n-2)$ dir. (Burada $F(1,3,1) = 2$ ve $F(1,3,2) = 6$ dir.)



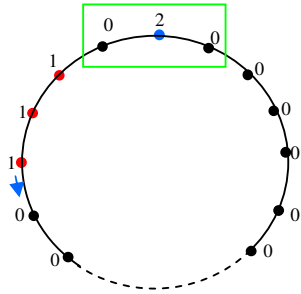
Benzer olarak devam edersek



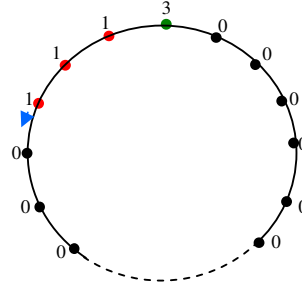


$\left\lfloor \frac{n}{2} \right\rfloor + 1$ durum vardır.

$1 + 2 + 3 + \dots + n + \left\lfloor \frac{n}{2} \right\rfloor + 1$ oluşan toplam durum sayısı



$(020) \rightarrow 3$ ile gösterirsek



$F(1,3,n-2)$ durum vardır.

$F(1,3,1) = 2$ ve $F(1,3,2) = 6$ olmak üzere

$F(1,3,n) = \frac{n(n+1)}{2} + \left\lfloor \frac{n}{2} \right\rfloor + 1 + F(1,3,n-2)$ fonksiyonel denklemi ile ifade edebiliriz.

$$F(1,3,3) = \frac{3 \cdot 4}{2} + \left\lfloor \frac{3}{2} \right\rfloor + 1 + F(1,3,1) = 6 + 1 + 1 + 2 = 10$$

$$F(1,3,4) = \frac{4 \cdot 5}{2} + \left\lfloor \frac{4}{2} \right\rfloor + 1 + F(1,3,2) = 10 + 2 + 1 + 6 = 19$$

$$F(1,3,5) = \frac{5 \cdot 6}{2} + \left\lfloor \frac{5}{2} \right\rfloor + 1 + F(1,3,3) = 15 + 2 + 1 + 10 = 28$$

$$F(1,3,6) = \frac{6 \cdot 7}{2} + \left\lfloor \frac{6}{2} \right\rfloor + 1 + F(1,3,4) = 21 + 3 + 1 + 19 = 44$$

$$F(1,3,7) = \frac{7 \cdot 8}{2} + \left\lfloor \frac{7}{2} \right\rfloor + 1 + F(1,3,5) = 28 + 3 + 1 + 28 = 60$$